1   **TIMING COMPENSATION IN A SELF-SERVOWRITING SYSTEM**

2   <u>Abstract of the Disclosure</u>

3   A method is disclosed for defining tracks on a rotating magnetic disk medium of a

4   disk drive. Reference tracks are followed using a servo control loop while writing servo

5   patterns defining a first target servo track.   The servo control loop includes a

6   two-dimensional digital state compensator having a first input that receives timing error

7   signals, a first output that generates control signals for a controlled oscillator, a second

8   output that generates timing state variables, and a second input that receives stored timing

9   state variables. The first target track is followed using the servo control loop while servo

10   patterns are written, and while the stored timing state variables corresponding to the servo

11   patterns defining the first target track are applied to the second input.